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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,384	07/27/2000	Lester F. Ludwig	063330-5047US	2926
24341 7590 05/15/2008 MORGAN, LEWIS & BOCKIUS, LLP. 2 PALO ALTO SQUARE 3000 EL CAMINO REAL PALO ALTO, CA 94306				
EXAMINER				
SELLERS, DANIEL R				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/601,384

Applicant(s)

LUDWIG, LESTER F.

Examiner

DANIEL R. SELLERS

Art Unit

2615

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5-7,57,63 and 67-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3,5-7,57,63 and 67-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. **Claims 2, 3, 5-7, 57, 63, and 67-79** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig (previously cited) in view of Cezanne (previously cited), Andrea (previously cited) and Slattery, US 5,848,146 A.
3. Regarding **claim 2**, Ludwig teaches a device for use in association with a multimedia system for capturing and reproducing at least audio signals (p. 3, lines 24-27), the device being:
 - A) associated with a plurality of microphones (p. 19, line 24 - p. 20, line 12, teaches at least three inputs via 802, 807, or 808);
 - B) configured to perform adaptive acoustic stereo or mono echo-canceling operations on audio signals captured by at least some of the associated microphones to produce at least one stereo echo-canceling audio signal (p. 20, lines 13-19, teaches a stereo echo-canceling function when the input is routed from A-IN port (802) to the EQ (815) then the echo-canceller (814) and stereo audio is used in teleconferencing; otherwise it is explicit that Ludwig teaches mono echo cancelling);
 - C) configured to perform synthetic aperture microphone processing on the audio signals captured by at least some of the associated microphones for producing at least one synthetic aperture microphone audio signal (Ludwig does not appear to teach this); and

D) configured to select between the synthetic aperture microphone processing capabilities and the adaptive acoustic stereo and mono echo-canceling operations (Fig. 19, units 802, 804, 807, 808, and 811-815 teaches that the echo-canceling operations are bypassed when using the I/O ports 807 and 808).

Therefore, Ludwig teaches a device with parts A, B, and D, but does not teach part C, the synthetic aperture microphone processing. Cezanne teaches synthetic aperture microphone processing (see Abstract, where synthetic aperture microphone processing is taught by a microphone array with adaptive sensitivity to a given direction, and this process can also be referred to as beamforming).

Specifically, Cezanne teaches a technique for adaptively adjusting the directivity of a microphone array to reduce background noise in a device used for video teleconferencing systems and multimedia computer communication systems (Col. 1, lines 10-27 and 43-46). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ludwig and Cezanne for the purpose of reducing background noise. The combination of Ludwig and Cezanne teaches a system that could have been used together in teleconferencing systems and multimedia computer communication systems, however the system of Ludwig appears to bypass the echo-canceling system only when the handset or headset input is used. Cezanne does not positively recite a handset or a headset.

Andrea teaches a telephone handset with adaptive noise cancellation for use in noisy environments (Col. 1, lines 7-12 and Fig. 8-11 and 15-17). Andrea teaches several different embodiments of handsets (Col. 14, lines 30-63 and Fig. 8-11), and

teaches that a system like Cezanne could be used to further reduce noise (Col. 15, line 16 - Col. 16, line 7). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ludwig, Cezanne, and Andrea for the purpose of further reducing sidelobe noises. However, the combination does not teach selecting between mono and stereo echo-cancelling.

Slattery teaches a telephone conferencing system with groups of microphones, each with an echo-cancelling system (abstract). Specifically, Slattery teaches echo cancelling in mono and stereo configurations, wherein the mode is selectable (column 8, lines 11-36 and figure 2C, unit 11-20). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ludwig, Cezanne, Andrea, and Slattery for the purpose of providing an expandable conferencing system.

4. Regarding **claim 3**, the further limitation of claim 2, see the preceding argument with respect to claim 2. It would have been obvious for one of ordinary skill in the art at the time of the invention to construct a single package containing the mono and stereo echo-canceling operations and the synthetic aperture microphone processing capabilities as taught by the combination of Ludwig, Cezanne, Andrea, and Slattery. Both Ludwig and Andrea teach an external I/O box (see Ludwig, Fig. 19 and Andrea, Fig. 11 and 17), and it would have been obvious to combine like features in one package.

5. Regarding **claim 5**, the further limitation of claim 2, see the preceding argument with respect to claim 2. In the combination, Cezanne teaches this feature of directional sensitivity.

6. Regarding **claim 6**, the further limitation of claim 2, see the preceding argument with respect to claim 2. In the combination, Cezanne teaches at least a delay operation on at least some of the audio signals (Fig. 3, unit 30 and 35).
7. Regarding **claim 7**, the further limitation of claim 2, see the preceding argument with respect to claim 2. In the combination, Ludwig teaches audio-video elements configured to receive, transmit, encode, and decode at least one of the audio signals and video signals (p. 9, lines 30-35).
8. Regarding **claim 57**, the further limitation of claim 2, see the preceding argument with respect to claim 2. In the combination, Ludwig teaches a communications port configured to couple the device to a workstation (Fig. 19, units 802, 804, 805, 807, and 808).
9. Regarding **claim 63**, the further limitation of claim 2, see the preceding argument with respect to claim 2. The combination of Ludwig, Cezanne, Andrea, and Slattery could also have been realized using just the microphone array (Andrea, Fig. 16) and by connecting it through the A-IN port 802 (Ludwig, Fig. 19).
10. Regarding **claim 67**, the further limitation of claim 2, see the preceding argument with respect to claim 2. In the combination, Ludwig teaches standard echo-canceling circuitry (Fig. 19, unit 814 and p. 20, lines 1-6), Cezanne teaches digital signal processing hardware (Col. 4, lines 28-35), and Andrea teaches the use of a digital signal processor capable of all digital processing functions (Col. 5, lines 50-55). It would have been obvious for one of ordinary skill in the art at the time of the invention to perform all the functions in a single processor to save costs.

11. Regarding **claim 68**, see the preceding argument with respect to claim 2. The combination of Ludwig, Cezanne, Andrea, and Slattery teaches a method with these features.
12. Regarding **claim 69**, the further limitation of claim 68, see the preceding argument with respect to claim 67. The combination teaches these features.
13. Regarding **claim 70**, the further limitation of claim 68, see the preceding argument with respect to claim 63. The combination teaches these features.
14. Regarding **claim 71**, the further limitation of claim 68, see the preceding argument with respect to claim 5. The combination teaches these features.
15. Regarding **claim 72**, see the preceding argument with respect to claim 2. The combination of Ludwig, Cezanne, Andrea, and Slattery teaches a method with these features.
16. Regarding **claim 73**, the further limitation of claim 72, see the preceding argument with respect to claim 3. The combination teaches these features.
17. Regarding **claim 74**, the further limitation of claim 72, see the preceding argument with respect to claim 67. The combination teaches these features.
18. Regarding **claim 75**, the further limitation of claim 72, see the preceding argument with respect to claim 63. The combination teaches these features.
19. Regarding **claim 76**, the further limitation of claim 72, see the preceding argument with respect to claim 5. The combination teaches these features.
20. Regarding **claim 77**, the further limitation of claim 72, see the preceding argument with respect to claim 6. The combination teaches these features.

21. Regarding **claim 78**, the further limitation of claim 72, see the preceding argument with respect to claim 7. The combination teaches these features.
22. Regarding **claim 79**, the further limitation of claim 72, see the preceding argument with respect to claim 57. The combination teaches these features.

Response to Arguments

23. Applicant's arguments with respect to claims 2, 3, 5-7, 57, 63, and 67-79 have been considered but are moot in view of the new ground(s) of rejection.
24. In anticipation of applicant's arguments, the combination of prior art as shown above teaches the features of the claims. Specifically, the combination of Ludwig, Cezanne, Andrea, and Slattery teaches selecting between mono echo cancelling, stereo echo cancelling and synthetic aperture microphone processing. The insertion of a headset into the system taught by Ludwig causes a selection between echo cancelling and synthetic aperture processing when the teachings of Cezanne are applied to a headset with a microphone array, as shown by Andrea. Slattery further makes it obvious to select between mono and stereo functions when microphones are added and removed.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matouk et al. (previously cited) - teaches active noise suppression in a telephone handset (abstract); and

Mauney et al. (previously cited) - teaches an earpiece with directional sensitivity towards user's mouth (abstract).

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 571-272-7528. The examiner can normally be reached on Monday to Friday, 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel R. Sellers/
Examiner, Art Unit 2615

/Sinh N Tran/
Supervisory Patent Examiner, Art Unit 2615